



FCC Part 1 Subpart I  
FCC Part 2 Subpart J  
INDUSTRY CANADA RSS 216 ISSUE 1

RF EXPOSURE REPORT

FOR

APPLE WATCH MAGNETIC CHARGING CABLE

MODEL NUMBER: A1570

FCC ID: BCGA1570  
IC: 579C-A1570

REPORT NUMBER: 14U19490-E8, REVISION C

ISSUE DATE: FEBRUARY 25, 2015

*Prepared for*  
**APPLE, INC.**  
**1 INFINITE LOOP**  
**CUPERTINO, CA 95014, U.S.A.**

*Prepared by*  
**UL VERIFICATION SERVICES INC.**  
**47173 BENICIA STREET**  
**FREMONT, CA 94538, U.S.A.**  
**TEL: (510) 771-1000**  
**FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

| Rev. | Issue Date | Revisions                                      | Revised By |
|------|------------|------------------------------------------------|------------|
| --   | 02/12/2015 | Initial Issue                                  | M.Mekuria  |
| A    | 02/18/15   | Address TCB's Questions                        | M. Mekuria |
| B    | 02/24/2015 | Address TCB's Questions on Section 5.3 and 7.3 | C. Pang    |
| C    | 02/25/2015 | Add Description on Section 5.2                 | C. Pang    |

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** APPLE, INC.  
1 INFINITE LOOP  
CUPERTINO, CA 95014, U.S.A.

**EUT DESCRIPTION:** APPLE WATCH MAGNETIC CHARGING CABLE

**MODEL:** A1570

**SERIAL NUMBER:** DLC451508N5FTPG3K

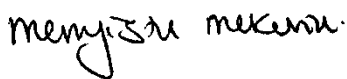
**DATE TESTED:** JANUARY 15-17 AND FEBRUARY 12, 2015

| APPLICABLE STANDARDS                    |              |
|-----------------------------------------|--------------|
| STANDARD                                | TEST RESULTS |
| FCC PART 1 SUBPART I & PART 2 SUBPART J | Pass         |
| INDUSTRY CANADA RSS 102 ISSUE 4         | Pass         |

UL Verification Services Inc. calculated the RF Exposure of the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

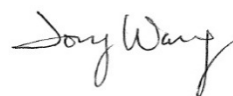
**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For  
UL Verification Services Inc. By:



MENGISTU MEKURIA  
SENIOR ENGINEER  
UL Verification Services Inc.

Calculated By:



TONY WANG  
LAB ENGINEER  
UL Verification Services Inc.

## 2. TEST METHODOLOGY

All calculations were made in accordance with FCC OET Bulletin 65 Edition 97-01 and IC Safety Code 6.

## 3. REFERENCES

All measurements were made as documented in test report UL Verification Services Inc. Document 14U19490-E3 for operation in the 326.5 KHz band.

Output power data is excerpted from the applicable test reports.

## 4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a stainless steel magnetic charging cable which includes an inductive charging coil to charge the Apple Watch.

### 5.2. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

| Support Equipment List |              |       |                  |           |
|------------------------|--------------|-------|------------------|-----------|
| Description            | Manufacturer | Model | Serial Number    | FCC ID    |
| AC/DC adapter          | Apple        | A1385 | D29236C3AFDHLHCT | N/A       |
| Watch                  | Apple        | A1554 | FG7NPOVLFY2H     | BCG-E2871 |
| Watch                  | Apple        | A1553 | FG7NG0CVFY1P     | BCG-E2870 |

#### I/O CABLES

| I/O CABLE LIST |      |                      |                |             |                  |         |
|----------------|------|----------------------|----------------|-------------|------------------|---------|
| Cable No.      | Port | # of Identical Ports | Connector Type | Cable Type  | Cable Length (m) | Remarks |
| 1              | DC   | 1                    | USB            | Un-shielded | 2.0              | N/A     |

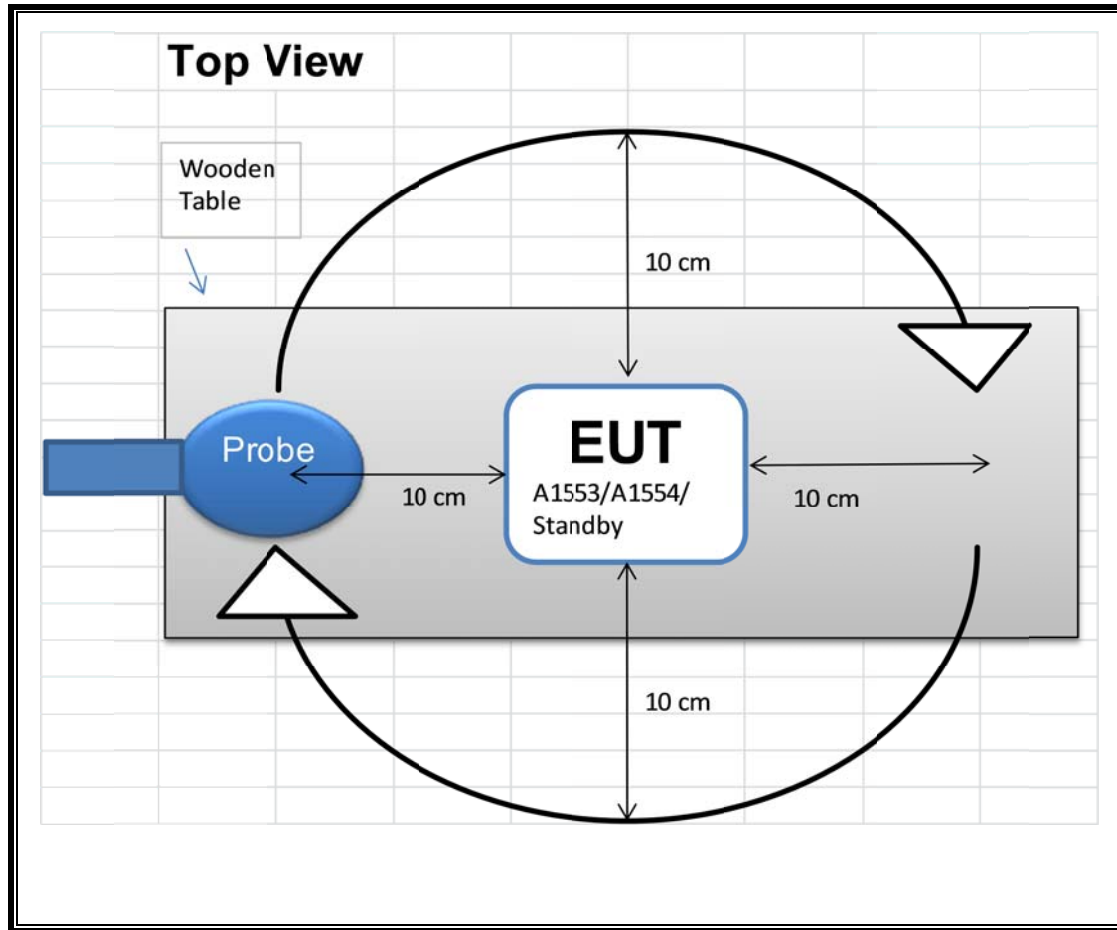
#### TEST SETUP

The following three configurations are tested:

| Configuration | Test Mode         | Descriptions                                         |
|---------------|-------------------|------------------------------------------------------|
| 1             | Standby           | EUT without supporting device, continue transmitting |
| 2             | Operating (A1553) | EUT with Client A1553 paired and in use              |
| 3             | Operating (A1554) | EUT with Client A1554 paired and in use              |

#### MEASUREMENT SETUP

The measurement was taken using a probe placed 10 cm from the center of the probe to the edge of the EUT. Measurements were taken from the top and all sides of the EUT per KDB 680106 D01



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was used for the tests documented in this report:

| Test Equipment List               |              |          |                  |            |            |
|-----------------------------------|--------------|----------|------------------|------------|------------|
| Description                       | Manufacturer | Model    | Local ID (T No.) | Cal Date   | Cal Due    |
| Electric and Magnetic Field Probe | Narda        | EHP-200A | 1085             | 12/08/2014 | 12/08/2015 |

## 7. MAXIMUM PERMISSIBLE RF EXPOSURE

### 7.1. FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency range (MHz)                                   | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|---------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures        |                               |                               |                                     |                          |
| 0.3–3.0                                                 | 614                           | 1.63                          | *(100)                              | 6                        |
| 3.0–30                                                  | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | 6                        |
| 30–300                                                  | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300–1500                                                |                               |                               | f/300                               | 6                        |
| 1500–100,000                                            |                               |                               | 5                                   | 6                        |
| (B) Limits for General Population/Uncontrolled Exposure |                               |                               |                                     |                          |
| 0.3–1.34                                                | 614                           | 1.63                          | *(100)                              | 30                       |
| 1.34–30                                                 | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 30                       |

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|-----------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| 30–300                | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300–1500              |                               |                               | f/1500                              | 30                       |
| 1500–100,000          |                               |                               | 1.0                                 | 30                       |

f = frequency in MHz

\* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

## 7.2. IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

**Table 5**  
**Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)**

| 1<br>Frequency<br>(MHz) | 2<br>Electric Field<br>Strength; rms<br>(V/m) | 3<br>Magnetic Field<br>Strength; rms<br>(A/m) | 4<br>Power<br>Density<br>(W/m <sup>2</sup> ) | 5<br>Averaging<br>Time<br>(min) |
|-------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|---------------------------------|
| 0.003–1                 | 280                                           | 2.19                                          |                                              | 6                               |
| 1–10                    | $280/f$                                       | $2.19/f$                                      |                                              | 6                               |
| 10–30                   | 28                                            | $2.19/f$                                      |                                              | 6                               |
| 30–300                  | 28                                            | 0.073                                         | 2*                                           | 6                               |
| 300–1 500               | $1.585f^{0.5}$                                | $0.0042f^{0.5}$                               | $f/150$                                      | 6                               |
| 1 500–15 000            | 61.4                                          | 0.163                                         | 10                                           | 6                               |
| 15 000–150 000          | 61.4                                          | 0.163                                         | 10                                           | $616\,000/f^{1.2}$              |
| 150 000–300 000         | $0.158f^{0.5}$                                | $4.21 \times 10^{-4}f^{0.5}$                  | $6.67 \times 10^{-5}f$                       | $616\,000/f^{1.2}$              |

\* Power density limit is applicable at frequencies greater than 100 MHz.

**Notes:** 1. Frequency,  $f$ , is in MHz.  
2. A power density of  $10\text{ W/m}^2$  is equivalent to  $1\text{ mW/cm}^2$ .  
3. A magnetic field strength of  $1\text{ A/m}$  corresponds to  $1.257\text{ microtesla } (\mu\text{T})$  or  $12.57\text{ milligauss (mG)}$ .

### 7.3. MEASUREMENTS RESULTS

#### RESULTS

Note: both Magnetic and electric field strength have been measured from 9 KHz to 30 MHz at 10cm.

| Configuration | Test Mode | Measuring Distance (cm) | Magnetic Field (A/m) | Electric Field (V/m) |
|---------------|-----------|-------------------------|----------------------|----------------------|
| 1             | Standby   | 10                      | 0.005                | 0.1                  |
| 2             | A1553     |                         | 0.005                | 0.1                  |
| 3             | A1554     |                         | 0.005                | 0.1                  |

Note: For detail information, please see Section 5.2

**END OF REPORT**